

REMARKS

Claims 1-19, listed above, are presently pending in the application. Applicants respectfully traverse the rejections presented in the Office Action for the following reasons.

Rejections Under 35 USC 102

The Office Action rejects claims 1-4 and 18 as being anticipated by U.S. Patent No. 6,157,832 of Klein.

Claim 1 recites a method of operating a network device, which includes an embedded first configuration database and an embedded second configuration database. The method includes operating the network device with the first configuration database as a primary configuration database and operating the network device with the second configuration database as a secondary configuration database. Modifications made to the first configuration database are replicated to the second configuration database. Upon detecting a configuration database upgrade operation, the replication of data from the first configuration database to the second configuration database is stopped. And the second configuration database is upgraded *without disrupting operation of the network device* and the first configuration database. The upgraded second configuration database is then utilized as the primary configuration database.

Klein is directed to a method for updating a redundant transaction service system (such as an automatic call distributor that provides automatic routing of telephone calls) that can include a primary and a secondary transaction processing devices. Updating of the system is accomplished by removing the secondary device from on-line service and updating it, e.g., installing new software. This is followed by removing the primary transaction device from on-line service (at this point, *both* devices are *off-line*), and transferring a current database of the primary transaction device to the secondary device. In addition, the updated database of the secondary device is converted to a format associated with the newly installed software. The secondary device is then returned on-line to provide transaction processing, and the new software is installed on the primary device. This is followed by a synchronization process by which the transactional data contained in the current database of the secondary device is transferred to that of the primary device while the secondary device remains on-line.

As an initial matter, the primary and the secondary databases of Klein are not configuration databases that contain configuration data for operating a network device. Rather, they are transactional databases that contain records of incoming transactions, such as inquiries or calls. Further, the updating of the secondary transaction database in Klein (step 215 in FIGURE 2B) is performed when *both* the primary and the secondary transaction processing devices are *off-line*. In other words, the operation of the system is interrupted, albeit temporarily, during updating and reformatting of the secondary database. In contrast, claim 1 recites that the upgrading of the second configuration database is performed “without disrupting operation of the network device and the first configuration database.” In other words, the network device remains operational during the updating process.

Thus, claim 1 distinguishes patentably over Klein.

Claim 2 depends on claim 1, and further recites detecting commitment of the configuration database upgrade (e.g., saving the upgraded configuration in persistent storage and removing the old configuration from memory as well as persistent storage), operating the network device with the first configuration database as a backup database, and replicating modifications made to the second configuration database to the first configuration database, *after detecting the commitment of the second configuration database upgrade*. Postponing replication of changes to the first configuration database until detection of the commitment of the upgrade modification, i.e., maintaining a copy of the old configuration until the new configuration is proven successful, advantageously allows returning to the old configuration if errors are detected in the upgrade. Claim 3, which depends on claim 1, further elaborates these additional aspects of the invention by reciting the following steps: detecting errors with the configuration database upgrade, and switching over to use the first configuration database as the primary configuration database.

Klein does not teach or suggest postponing replication of changes made to the secondary transaction database to the first transaction database until commitment of those changes is detected. In fact, in Klein, the resynchronization of the first database with the modified second database (step 240 in FIGURE 2C) is performed without evaluating changes made to the second

database. In the same vein, Klein does not consider switching over to the unmodified database if errors are detected in the modified database.

Neither does Klein teach the additional feature of claim 4, namely, upgrading the second configuration database via receiving a configuration control file from a network management server, and executing the configuration file.

Accordingly, similar to claim 1, claims 2-4 also distinguish patentably over Klein.

Claim 18 depends on claim 2, and further recites that detecting commitment of the configuration database upgrade includes saving the upgraded second configuration database to persistent memory. The arguments presented above apply with equal force to establish that claim 18 is also patentable over Klein.

Rejections Under 35 USC 103

The Office Action rejects claims 5 and 9 as being obvious in view of the combined teachings of Klein and U.S. Patent No. 6,081,811 of Nilsson.

Claim 5 depends on claim 4, which in turn depends on claim 1. Claim 4 further recites that upgrading the second configuration database comprises receiving a configuration control file from a network management server, and executing the configuration control file. Claim 5 adds that upgrading the second configuration database includes receiving a data definition language (DDL) file that contains structured query language (SQL) commands, and that the step of executing the configuration control file includes executing the SQL commands to construct an upgraded database schema in the second configuration database.

As noted above, Klein fails to teach the following material feature of claim 1 (and consequently that of claim 5): upgrading the second configuration database *without disrupting operation* of the network device and the first configuration database. Nilsson does not cure the shortcomings of Klein. In fact, Nilsson is not concerned with upgrading two databases that function as primary and backup databases in a network device. Rather, Nilsson is directed to a method of effecting conversion of a single database by creating specifications for a new

configuration, converting the database in accordance of these specifications, and verifying that the new database is consistent.

Thus, claim 5 distinguishes patentably over the combined teachings of Klein and Nilsson.

The arguments presented above apply with equal force to establish that independent claim 19 is also patentable over the combined teachings of Klein and Nilsson. In particular, claim 19 recites, among other steps, upgrading the second configuration database without *disrupting operation of the network device* and the first configuration database – a feature not taught by either Klein or Nilsson.

In paragraph 12, the Office Action rejects claims 6, 13 and 14 as being obvious over Klein in view of U.S. Patent No. 6,651,249 of Waldin.

Claim 6 depends on claim 1, and further recites that detecting a configuration database upgrade includes receiving an upgrade definition from a network management system server. Claim 13 depends on claim 1, and further recites a step of receiving upgraded applications from a network management server before detecting a configuration database upgrade operation. And claim 14 depends on claim 1, and further recites a step of receiving new applications from a network management server before detecting a configuration database upgrade operation.

As discussed in detail above, Klein does not teach at least one salient feature of claim 1, and hence that of claims 6, 13 and 14. In addition, Waldin does not bridge the gap in the teachings of Klein. In particular, Waldin does not teach methods of upgrading configuration databases embedded in a network device without disrupting the device's operation. Rather, it is related to methods for updating a software application to a newer version by employing incremental update patches, each of which contains information needed to transform one version of the application to another.

In Paragraph 16, the Office Action rejects claims 7-12 as being obvious in view of the combined teachings of Klein, Waldin and Nilsson.

Claims 7-12 depend, either directly or indirectly, on claim 1. As discussed in detail above, the cited Klein, Waldin or Nilsson patents, neither individually nor in combination, disclose all of the claim 1 features. Consequently, they fail to disclose all of the features of dependent claims 7-12, as well.

In Paragraph 23, claims 15-17 are rejected as being obvious over Klein.

Claim 15 depends on claim 1, and further recites that the network device comprises a first printed circuit board including a first processor component. Claim 15 further includes the steps of maintaining the first configuration database through the first processor component, and operating the network device with the first printed circuit board as a primary printed circuit board and the first processor component as a primary processor component. Claim 16 in turn depends on claim 15, and further recites that the network device comprises a second printed circuit board including a second processor component. Moreover, claim 16 recites the additional steps of maintaining the second configuration database through the second processor component, and operating the network device with the second printed circuit board as a backup printed circuit board and the second processor component as a backup processor component.

As an initial matter, claims 15 and 16 includes features of claim 1 that are not taught by Klein. In addition, maintaining the primary and the back configuration databases by separate processors in a network device includes advantages, not realized by Klein. In particular, it allows maintaining the device in operation by switching from the primary processor to the backup processor if the operation of the primary board is interrupted due to a fault. The Examiner fails to provide any incentive for modifying Klein to utilize two *separate processors* for operating a primary database and a backup database within a single network device.

CONCLUSION

In view of the above remarks, Applicants respectfully request reconsideration and allowance of the application. Applicants invite the Examiner to call the undersigned at (617) 439-2514 if there are any remaining issues.

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Respectfully submitted,

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